UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte THEODORE M. WONG, DAVID A. SINGER, SANTA H. LIN and TERRY T. LIN

Appeal No. 2006-1389
Application No. 09/912,471

ON BRIEF

Before SCHEINER, GRIMES and GREEN, Administrative Patent Judges.

SCHEINER, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to an enzymatic method for degrading ribonucleic acids in a soy protein material. The examiner has rejected the claims as anticipated by the prior art, and also as obvious over the prior art. We have jurisdiction under 35 U.S.C. § 134. We affirm the anticipation rejection, and do not reach the obviousness rejection.

Background

"Commercially available protein concentrates and isolates . . . contain some impurities which are undesirable . . . includ[ing] phytic acid, phytates, ribonucleic acids, ash, and minerals bound to phytic acid, phytates, or ribonucleic acids" (Specification,

page 1). "Reducing the level of phytic acid . . . and phytates, which are the salts of phytic acid, in vegetable protein materials has been of interest since phytic acid and phytates tend to form complexes with proteins and multivalent metal cations, reducing the nutritional value of the vegetable protein material" (id.). "It is [also] desirable to reduce the levels of ribonucleic acid materials and associated minerals in vegetable proteins" (id., page 3).

"Phytase enzyme preparations are particularly useful for purifying vegetable protein materials since they are inexpensive and readily commercially available" (id., page 2), but they "are not recognized to reduce the levels of ribonucleic acid materials and associated minerals in vegetable protein materials since the most common phytases, especially 3-phytase, do not degrade the ribonucleic acid structure" (id.).

However, "[s]ome . . . phytase enzyme compositions [additionally] include sufficient concentrations of the enzyme acid phosphatase . . . to effect degradation of phytic acid and phytates" (id.). "The present invention resides in the discovery that acid phosphatase enzymes unexpectedly cleave ribonucleic acids, and therefore can be used to degrade and reduce the concentration of ribonucleic acid materials in vegetable protein materials on a commercial scale, as well as remove minerals and ash bound by the ribonucleic acid materials" (id., page 4).

Discussion

The Claims

Claims 81-93 and 96-124 are pending and on appeal. Appellants have not presented separate patentability arguments for any of the claims. Therefore, for

purposes of this appeal, we will treat claims 82-93 and 96-124 as standing or falling with representative claim 81. 37 CFR § 41.37(c)(1)(vii).

Claim 81 reads as follows:

81. A method for producing a soy protein material comprising,

forming an aqueous slurry of a soy protein material
treating the slurry with an enzyme preparation containing an acid phosphatase enzyme at a temperature, a pH, and for a time period effective for said enzyme preparation to degrade ribonucleic acids in the soy protein material; and
washing the soy protein material to remove degraded ribonucleic acids.

Anticipation

Claims 81-93 and 96-124 stand rejected under 35 U.S.C. § 102(b) as anticipated by Simell.[1] Simell describes a method for producing phytate-free or low phytate soy protein isolates or concentrates using one or more phytate-degrading enzymes. See e.g., Simell, pages 5-6, and Examples 1-5. Simell teaches that "[p]hytate-degrading enzymes include phytase and acid phosphatases" (id., page 6, line 19), and that "Finase[®] enzymes" are "[p]articularly preferred for [this] purpose[ ]" (id., line 26). It is undisputed on this record that Finase® is a commercially available enzyme preparation containing both phytase and acid phosphatase (Appeal Brief, page 10).

Simell does not discuss the presence of ribonucleic acids in soy protein materials. Nevertheless, as discussed above, the present specification teaches that undesirable impurities in vegetable protein materials "include phytic acid, phytates, ribonucleic acids, ash, and minerals bound to phytic acid, phytates, or ribonucleic acids" (Specification, page 1).

[1] Simell et al., European Patent Application, Publication No. 0 380 343, published August 1, 1990

The examiner argues that Simell describes "each of the steps employed by Appellants' claimed process[ ]" (Examiner's Answer, page 4). That is, Simell describes "providing or forming an aqueous slurry of a soy protein material" (id.), "treating the slurry with [Finase®,] an enzyme preparation containing acid phosphatase enzyme at a temperature, a pH and for a time period effective for said enzyme preparation to provide for degradation of the soy protein material" (id.), and "washing the soy protein degraded material" (id.). According to the examiner, "degradation of RNA in [Simell's method] . . . is not [merely] a probability or possibility[,] but an inherent function and property" (id., page 5) and "a necessary consequence of the intended degradation of the soy protein material disclosed by the cited patent" when Finase® is used (id.).

Appellants do not dispute the examiner's assertion that Simell describes treating a soy protein slurry with acid phosphatase in a manner effective to degrade ribonucleic acids in the protein slurry. Rather, appellants argue that "[t]he process of the cited reference must always contain an acid phosphatase in order to establish inherent anticipation" (Appeal Brief, page 12), thus Simell's method does not inherently anticipate the claimed invention because it "is not limited to use of FINASE® enzymes and can utilize [other] phytate-degrading enzyme preparation[s]" (id., page 11), some of which "do not necessarily contain an acid phosphatase enzyme [ ] effective to degrade ribonucleic acids in a vegetable protein material" (id.).

In this regard, appellants rely on the declaration of Dr. Theodore M. Wong (dated July 1, 2003), wherein Dr. Wong describes the results of "an experiment [ ] conducted to determine the extent of degradation of phospho- and diphospho-ester nucleoside

containing compounds in a soy protein material by an acid phosphatase enzyme preparation in comparison with NATUPHOS® phytase enzyme" (Wong Declaration, ¶ 4). According to Dr. Wong, "treatment with the acid phosphatase enzyme preparation produced a soy material product in which 95.8% . . . of all ribonucleoside containing compounds were either in their monomeric nucleoside form or their monomeric nucleotide form – clearly indicating the degradation of most polymeric ribonucleic acids in the soy material" (id.). The NATUPHOS® phytase enzyme, which does not contain acid phosphatase, "degraded little or no polymeric ribonucleic acids" (id.).

"Furthermore," appellants argue, "even if the FINASE[®] enzyme preparation disclosed . . . as [Simell's] preferred enzyme preparation always degrades ribonucleic acids in the slurry of soy protein material, . . . disclosure of the use of the FINASE[®] enzyme preparation in a soy material is insufficient to establish inherent anticipation because the deliberate intent of [Simell] . . . is to degrade phytates with one or more phytate-degrading enzymes, which can be accomplished . . . with other non- FINASE[®] enzymes that do not result in the degradation of ribonucleic acids" (Appeal Brief, pages 12-13).

In short, appellants argue that "[i]t is irrelevant to a determination of anticipation by inherency if a FINASE[®] enzyme preparation always degrades ribonucleic acids in an aqueous slurry of a soy protein material in the process taught in the [Simell] patent because [Simell's] deliberate intent . . . is to degrade phytates in a soy protein material with one or more phytate degrading enzymes that are not limited to FINASE[®] enzyme

preparations" (id., page 13, citing MEHL/Biophile Int'l Corp. v. Milgraum, 192 F.3d 1362, 1365, 52 USPQ2d 1303, 1307 (Fed. Cir. 1999), inter alia).

We disagree with appellants' reasoning and conclusion. First, the fact that a person of ordinary skill in the art might work within the broad disclosure of Simell without using an acid phosphatase does nothing to negate Simell's explicit description of treating soy protein materials with Finase®. See e.g., Perricone v. Medicis Pharm. Corp., 432 F.3d 1368, 1376, 77 USPQ2d 1321, 1326 (Fed. Cir. 2005) ("This court rejects the notion that one of these [fourteen] ingredients cannot anticipate because it appears without special emphasis in a longer list."); In re Petering, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962) ("[E]ach compound within the limited class in [the reference] . . . has been described . . . within the meaning of 35 U.S.C. 102(b)"). Therefore, we find, as did the examiner, that Simell explicitly describes treatment of soy protein isolates with Finase®, a commercial preparation containing phytase and acid phosphatase.

That being the case, Simell's "deliberate intent" in treating a soy protein slurry with Finase® is beside the point. "It is a general rule that merely discovering and claiming a new benefit of an old process cannot render the process again patentable." In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). "[T]he discovery that acid phosphatase enzymes unexpectedly cleave ribonucleic acids, and therefore can be used to degrade and reduce the concentration of ribonucleic acid materials in vegetable protein materials" in addition to "degrading phytic acid and phytates" (Specification, page 4), "corresponds to a claimed new benefit or

characteristic of an invention otherwise in the prior art[,]" and it is well settled that "the new realization alone does not render the old invention patentable" (Perricone, 432 F.3d at 1377, 77 USPQ2d at 1327). "[A] limitation or the entire invention is inherent and in the public domain if it is the 'natural result flowing from' the explicit disclosure of the prior art" (id. citations omitted). In this case, it is undisputed that RNA degradation is the natural result of treating soy protein materials with Finase®, a commercial preparation containing both phytase and acid phosphatase.

As summarized in Perricone, id. at 1375-76, 77 USPQ2d at 1325-26:

> A single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation. Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565 [24 USPQ2d 1321] (Fed. Cir. 1992). Thus, a prior art reference without express reference to a claim limitation may nonetheless anticipate by inherency. See In re Cruciferous Sprout Litig., 301 F.3d 1343, 1349 [64 USPQ2d 1202] (Fed. Cir. 2002). "Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claims limitations, it anticipates." Id. (quoting MEHL/Biophile Int'l Corp. v. Milgraum, 192 F.3d 1362, 1365 [52 USPQ2d 1303] (Fed. Cir. 1999). Moreover, "[I]nherency is not necessarily coterminous with knowledge of those of ordinary skill in the art. Artisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art." Id.; see also Schering Corp. v. Geneva Pharms., 339 F.3d 1373, 1377 [67 USPQ2d 1664] (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition in the prior art) (citing In re Cruciferous Sprout Litig., 301 F.3d at 1351; MEHL/Biophile, 192 F.3d at 1366).

"Thus, when considering a prior art method, the anticipation doctrine examines the natural and inherent results in that method without regard to the full recognition of those benefits or characteristics within the art field at the time of the prior art disclosure." Id. at 1378, 77 USPQ2d at 1327. Based on the examiner's undisputed assertion that

Simell describes treatment of soy protein material with Finase®, in a manner and amount effective to degrade RNA in the materials, we conclude that the examiner has set forth a prima facie case of anticipation under 35 U.S.C. § 102(b). Again, the fact that Simell describes other embodiments of the prior art method that do not use acid phosphatase is irrelevant in this context.

The examiner's rejection of claim 81 as anticipated by Simell is affirmed. As discussed above, claims 82-93 and 96-124 fall with claim 81.

Obviousness

Having determined that Simell anticipates the claimed invention, we need not reach the rejection of the claims under 35 U.S.C. § 103 as unpatentable over Simell.

Time Period for Response

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

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